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Servicing Requirements for Fixed CO2/Halon Systems

Ref: (a) National Fire Protection Association (NFPA) 12, Standards on Carbon Dioxide Extinguishing Systems
(b) NFPA 12A, Standards on Halon 1301 Fire Extinguishing Systems
(c) Coast Guard NVIC No. 3-95, Periodic Inspection and Testing of Fixed Halon Fire Fighting Equipment aboard Merchant Vessels

During several recent COI and Annual inspections we have found serious deviations from the requirements for the installed fixed fire fighting. Proven and tested firefighting systems are vital components for the safe operation of all inspected vessels; therefore vessel owners and operators are reminded that they are ultimately responsible for ensuring their firefighting equipment is serviced and tested in accordance with Title 46 Code of Federal Regulations (CFR).

The applicable sections of Title 46 of the Code of Federal Regulations (CFR) 97.15-60, 132.350, and 176.810, require that the following items associated with installed fixed fire fighting systems must be tested annually, cylinders are to be weighed, time delays and other alarms tested, piping including all hoses and nozzles examined, and ventilation shutdowns tested.

Liquid level gauging (ultrasonic) of cylinders is not approved as a substitute for weighing of cylinders.

Fixed CO2/Halon Systems:
Fixed CO2/Halon systems shall be serviced and tested in accordance with references (a), (b), and (c) as outlined below. Cylinders must be tested and marked, and all flexible connections and discharge hoses of semi-portable carbon dioxide and halon extinguishers must be tested or renewed, as required by 46 CFR 147.60 and 147.65. Servicing must be completed by a competent person who has been thoroughly trained and any hydrostatic testing of cylinders must be completed by a person holding a current requalification identification number (RIN) as per 49 CFR 180.209(g). A requalification identification number or RIN means a code assigned by U.S. Department of Transportation (DOT) to uniquely identify a cylinder requalification, repair, or rebuilding facility.

The following is a list of all items required to be inspected, tested, serviced, and documented by a certified servicing company annually:

1. Visual inspection of the material condition of the entire system including but not limited to all cylinders, time delays, piping, hoses, discharge nozzles, pressure gauge, controls, release boxes, switches, pull cables, wiring, and placards.

2. Cylinders shall be removed from the mounting racks and an annual weighing of the CO2/Halon cylinders using a certified scale shall be conducted to ensure no weight drop greater than 10 percent of the net content for CO2 cylinders and 5 percent of the net content for Halon cylinders. If at any time a cylinder has a weight drop greater than that mentioned above, the cylinder must be replaced or refilled.

3. Inspect cylinder for the date of the last hydrostatic test. Every 12 years or, if more than 5 years each since the last hydrostatic test and the cylinder has been discharged, a hydrostatic test of all CO2 cylinders shall be conducted. As per reference (c), Halon cylinders do not need to be hydrostatically tested unless the bottle has been discharged or a visual inspection causes concern.

4. Inspect flexible hoses and/or previous documentation for last hydrostatic test date. Every 5 years flexible hose shall be removed from all CO2 systems and hydrostatically tested in accordance with reference (b). For Halon systems, reference (c) allows flexible hose hydrostatic testing to be conducted every 12 years.

5. Operationally test the entire system in accordance with reference (a), (b), (c) and the manufacturer's specifications using a dry, non-corrosive gas such as nitrogen or carbon dioxide.

a. Prior to beginning the operational test, the attending Marine Inspector, vessel operator, and servicing company representative shall ensure no personnel are in the space during the test and follow all safety precautions listed in reference (b).

b. The operational test shall include the proper operation of all pull stations, shut down switches and controls, time delays, discharge nozzle clearance, and alarms.

c. As per references (a) and (b), time delays that are not accurate to within plus 20 percent or minus 0 percent of the rated time at 70°F shall be replaced. The manufacturer's manual will have a variance table for the ambient temperature which the system is being tested at and the exact time of the delay shall be noted on the servicing company's documentation.

d. For proper testing of the discharge nozzles, servicing companies shall attach an indicator such as a plastic bag or glove over each nozzle, when the test is completed, if the indicator was not blown off the nozzle, then the nozzle may be clogged.

e. At the end of the operational test, each dirt trap shall be removed and the inside of the systems piping shall be inspected for debris.

For additional information or clarification regarding this Marine Safety Information Bulletin, please send your questions or comments to: acteurinspections@uscg.mil or call +31 (0) 61-297-9335.

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